It’s Getting Hot In Here:

The Burning Effect of Fake News on Climate Change

Austin Schwinn March 10, 2017

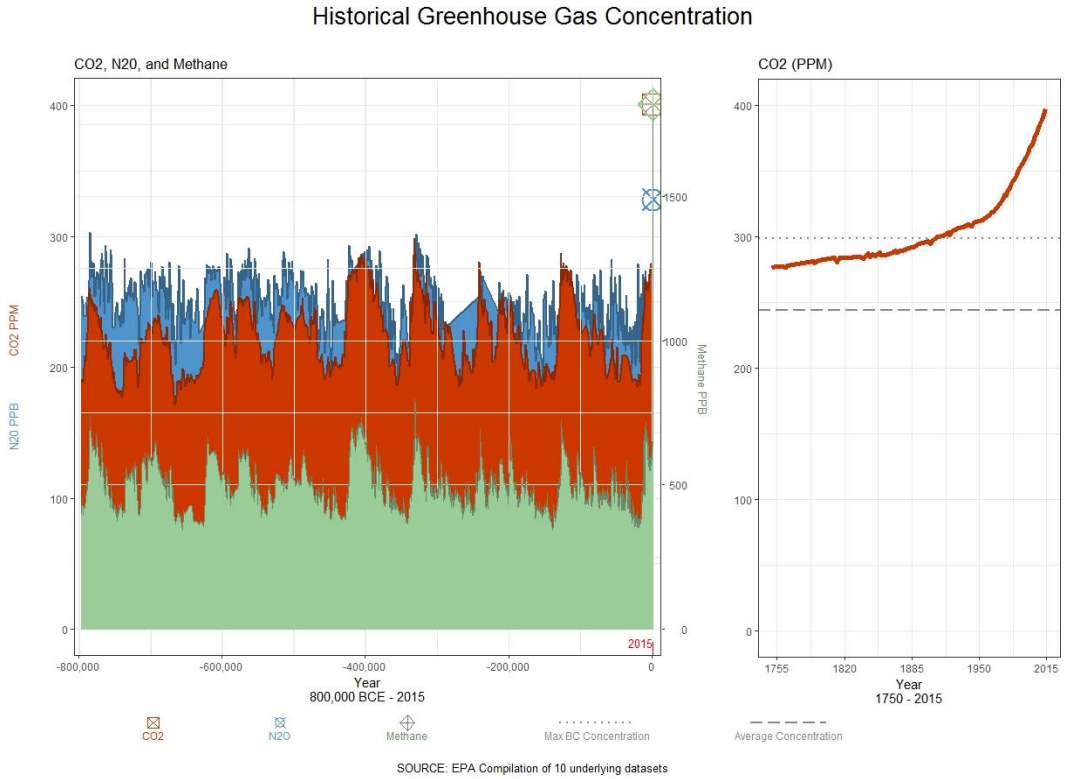
'I think that measuring with precision human activity on the climate is something very challenging to do, and there's tremendous disagreement about the degree of impact, so no, I would not agree that it's a primary contributor to the global warming that we see'

-Scott Pruitt, Administrator of the EPA. March 9, 2017

The CNBC Interview

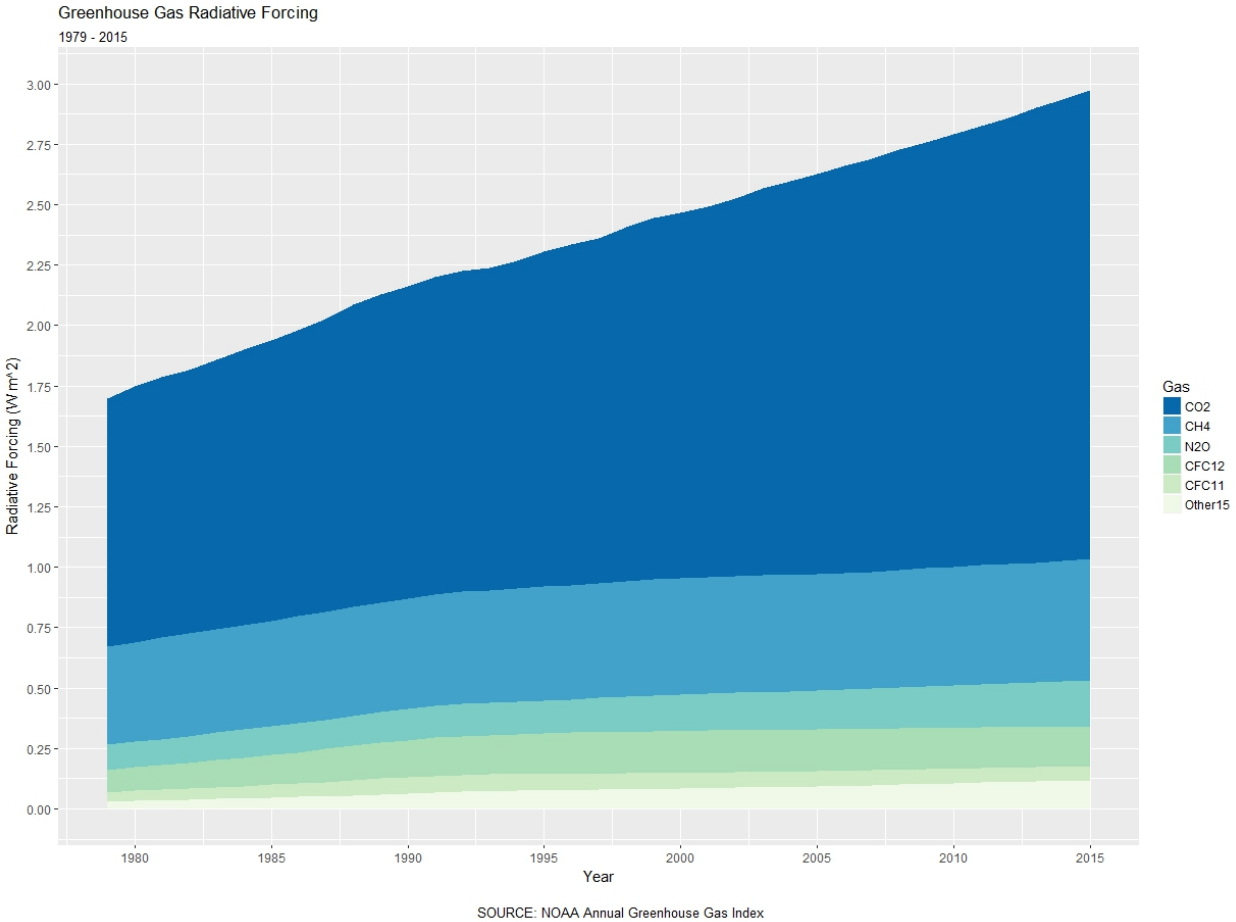
The United States has come a long way from the days of total denial of global-warming. Despite how politicized the subject has become, people on both sides of the aisle have started to acknowledge the presence of climate change. Today, concern has shifted from questioning its *existence* to questioning the *cause* behind it. While some opponents still hold the misconception that the 'science is not yet in' on the culprit, the scientific community has long reached a consensus to the drivers behind the increase in global temperatures. Using historical climate data, I intend to illustrate how we know the climate is changing and its cause… carbon dioxide (CO2) and other greenhouse gases.

Stretching from our prairies and forests to our cities and farmland, humans have a long history of altering the environment to suit their needs, for better or for worse. The larger climate hasn’t been exempt from the human touch either. Through the use of tree rings and ice core samples, scientists have been able to identify, with precision, the concentration of greenhouse gases as far back as prehistoric times.

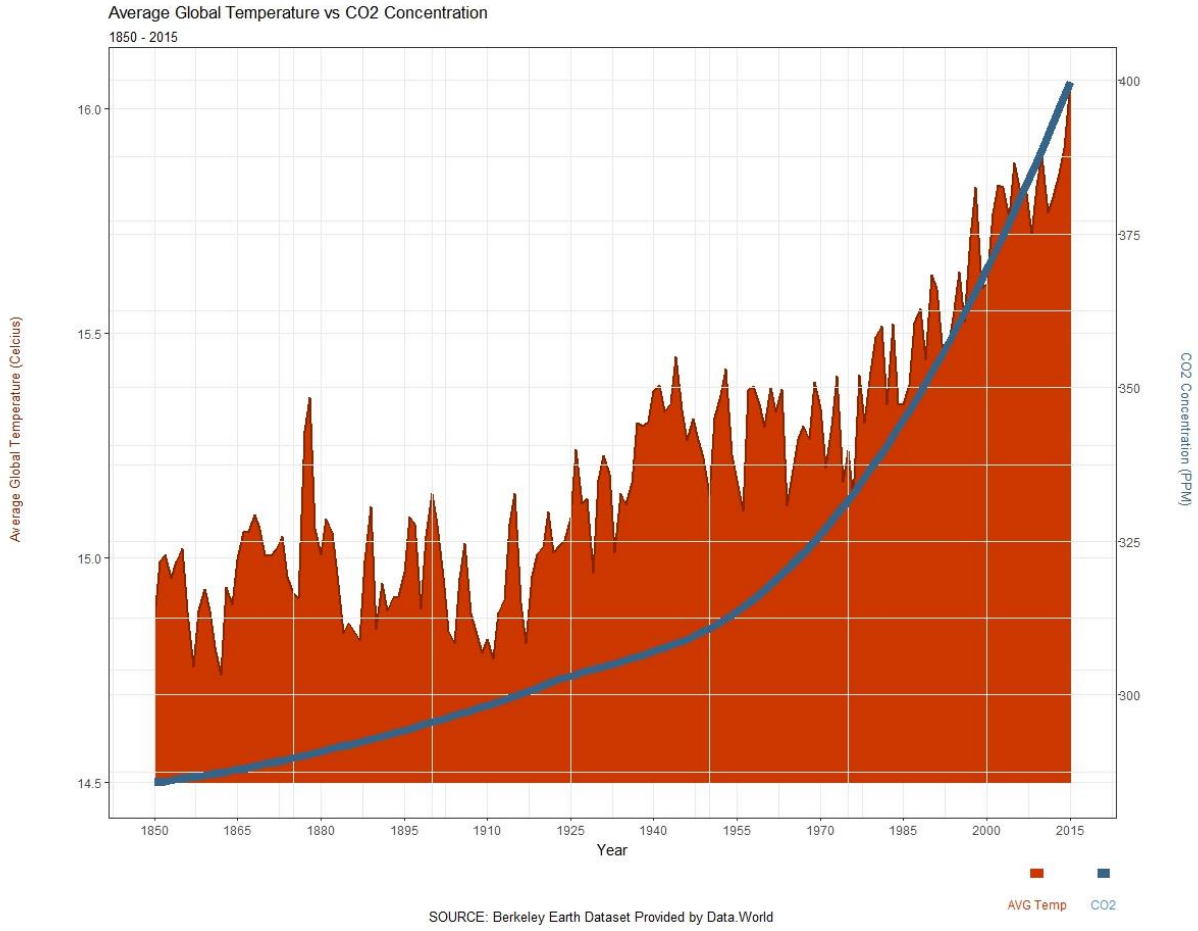


From 800,000 BCE to recent history, there was a clear pattern in the concentration of gases on our planet. On the far right of our larger graph within *Historical Greenhouse Gas Concentration*, we see a distinct break from this cycle that is well above any former precedent. The graph on the right presents an expanded view of recent history. This chart focus on an important change, the Industrial Revolution, and the 1750's mark the point in time when humans began to produce carbon dioxide on a massive scale. We've seen continual growth since this point, with a concentration of 400 parts per million (PPM) in 2015 compared to the historical average of 243 PPM. This distinct break from the historical norm becomes even more alarming when you combine this with our knowledge of the behavior of greenhouse gases, known as the greenhouse effect.

Scientists have been testing and verifying the greenhouse gas effect for nearly 200 years. Physicist Joseph Fourier first documented the heat trapping properties of gases like CO2 in 1824. This long tested principle is the foundation that demonstrates carbon dioxide's significant role in altering our climate. Scientists even have the capacity to measure the effect of each gas on global warming, through radiative forcing. Radiative forcing is the measure of the influence a gas has on tilting the earth's energy balance (solar energy escaping vs. remaining with our atmosphere) towards retaining more heat from the sun.



Since first measuring the radiative forcing of each greenhouse gas, carbon dioxide's influence has continually grown. Today, scientists understand that CO2 has exceeded historical norms and they can measure its impact on the retention of solar energy on our planet. Now, what is its impact?



The first total global average temperature (land and sea) was recorded in the mid 1800's. Since its inception, CO2 concentration and the global average temperature have followed the same upward trend with rapid growth after the 1950's.

> "According to the U.N.'s Intergovernmental Panel on Climate Change's 2013 assessment report, scientists are 'virtually certain' (99 percent to 100 percent confident) that natural climatic variability 'alone cannot account for the observed global warming since 1951.' The report concludes that it is 'extremely likely' (95 percent to 100 percent confident) that more than half of the observed temperature increase since 1950 is due to human activities."
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> -"Precision in Climate Science" by Vanessa Schipani, FactCheck.org

Here's what we know. The climate is changing and humans are to blame for this break from historical norms. We now stand at a crucial time in the future of our planet's health and the climate that sustains

all known life. The Environmental Protection Agency (EPA), the National Oceanic and Atmospheric Administration (NOAA), and the remainder of references included in this paper, provide excellent information and data on climate change. Information that is readily available to our nation's leaders, such as Scott Pruitt, Administrator of the EPA. As we see record-breaking sea ice melts and warming global temperature year after year, Pruitt may find it prudent to examine all the data his agency has to offer, before continuing to spread false and misleading information.

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South Pole, Antarctica: 1976 CE to 2014 CE
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